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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,353	06/12/2001	Richard Carl Phelps	032658-016	7825

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EXAMINER

CLEARY, THOMAS J

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 01/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/787,353

Applicant(s)

PHELPS ET AL.

Examiner

Thomas J. Cleary

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-33, 35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over The Universal Serial Bus Specification Revision 1.0 ("USB") in view of IEEE Standard 1394-1995 ("IEEE-1394"), US Patent Number 4,709,364 to Hasegawa et al. ("Hasegawa"), and US Patent Number 6,230,226 to Hu et al. ("Hu").
3. In reference to Claim 30, USB teaches a bus architecture (See Page 28 Figure 4-1 and Page 27 Paragraph 1); a plurality of modules connected to the bus architecture (See Page 28 Figure 4-1 and Page 27 Paragraph 1); and an arbitration unit for granting access to the bus, the granting of access being in the form of a dedicated packet issued from the arbitration unit, whereby only the module which has been granted access can use that particular dedicated packet to gain access to the bus (See Page 30 Section 4.4). USB does not teach that the apparatus is on an integrated circuit; the arbitration unit grants access to the bus in response to requests received from the modules; and

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that the arbitration unit is operable to issue empty packets during periods when the bus is idle, the empty packets being usable by a module to gain access to the bus without making a specific request to the arbitration unit for a dedicated packet. IEEE-1394 teaches an arbitration unit granting access to the bus in response to requests received from the modules (See Page 33 Paragraphs 2-4). Hasegawa teaches sending an empty packet during periods when the bus is idle that are usable by a module to gain access to the bus without making a specific request to the arbitration unit for a dedicated packet (See Column 1 Lines 16-21). Hu teaches locating a USB on a single integrated circuit (See Figures 1 and 2 and Column 1 Lines 39-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394, the empty packets of Hasegawa, and the integrated circuit of Hu, resulting in the invention of Claim 30, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See Pages 33 and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

4. In reference to Claim 31, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as in Claim 30 above. Hasegawa further teaches that the first module to use the empty packet gains access to the bus (See Column 1 Lines 16-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394 and the empty packets of Hasegawa, resulting in the invention of Claim 31, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See Pages 33 and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

5. In reference to Claim 33, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as in Claim 30 above. USB further teaches that the hub, which is equivalent to the arbitration unit, is located at one end of the bus (See Page 28 Figure 4-1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394 and the empty packets of Hasegawa, resulting in the invention of Claim 33, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See Pages 33

and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

6. In reference to Claim 35, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as in Claim 30 above. USB further teaches that a universal serial bus is part of a computer system (See Page 27 Paragraph 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394 and the empty packets of Hasegawa, resulting in the invention of Claim 35, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See Pages 33 and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

7. In reference to Claim 39, USB teaches a method of granting bus access to a module in a computer system comprising a plurality of modules interconnected by the

bus (See Page 28 Figure 4-1 and Page 27 Paragraph 1); and an arbitration unit for granting access to the bus by issuing dedicated (See Page 30 Section 4.4). USB does not teach that the apparatus is on an integrated circuit; the arbitration unit grants access to the bus in response to requests received from the modules; issuing empty packets from the arbitration unit during periods when the bus is idle; and, allowing any module to use the empty packet in order to gain access to the bus. IEEE-1394 teaches an arbitration unit granting access to the bus in response to requests received from the modules (See Page 33 Paragraphs 2-4). Hasegawa teaches sending an empty packet during periods when the bus is idle that are usable by a module to gain access to the bus without making a specific request to the arbitration unit for a dedicated packet (See Column 1 Lines 16-21). Hu teaches locating a USB on a single integrated circuit (See Figures 1 and 2 and Column 1 Lines 39-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394, the empty packets of Hasegawa, and the integrated circuit of Hu, resulting in the invention of Claim 39, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See Pages 33 and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over USB, IEEE-1394, Hasegawa, and Hu as applied to Claim 30 above, and further in view of US Patent Number 5,400,334 to Hayssen ("Hayssen").

9. In reference to Claim 32, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as applied to Claim 30 above. USB, IEEE-1394, Hasegawa, and Hu do not teach that each module has means for converting a dedicated packet intended for itself into an empty packet. Hayssen teaches receiving a token indicating it has control of the bus, which is equivalent to a dedicated packet intended for itself, and converting said token into a free token, which is equivalent to an empty packet (See Column 3 Lines 29-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of USB, IEEE-1394, Hasegawa, and Hu ability to convert a token to a free token of Hayssen, resulting in the invention of Claim 32, in order to provide an indication that the bus is now free for other devices to transmit data (See Column 3 Lines 12-22 of Hayssen).

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over USB, IEEE-1394, Hasegawa, and Hu as applied to Claim 30 above, and further in view of US Patent Number 5,912,710 to Fujimoto ("Fujimoto").

11. In reference to Claim 37, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as applied to Claim 30 above. USB, IEEE-1394, Hasegawa, and Hu do not teach a graphics processing system comprising apparatus as claimed in Claim 30. Fujimoto teaches a graphics processing system having a USB interface (See Column 10 Line 61 – Column 11 Line 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of USB, IEEE-1394, Hasegawa, and Hu in the graphics processing system of Fujimoto, resulting in the invention of Claim 37, in order to allow peripheral devices to be connected to the graphics processing system (See Column 10 Lines 61-63 of Fujimoto).

12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over USB, IEEE-1394, Hasegawa, and Hu as applied to Claim 30 above, and further in view of US Patent Number 5,986,644 to Herder et al. ("Herder").

13. In reference to Claim 38, USB, IEEE-1394, Hasegawa, and Hu teach the limitations as applied to Claim 30 above. USB, IEEE-1394, Hasegawa, and Hu do not teach a games console comprising apparatus as claimed in Claim 30. Herder teaches a games console having a communications bus such as USB (See Column 2 Line 56 – Column 3 Line 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of USB, IEEE-1394, Hasegawa, and Hu in

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the games console of Herder, resulting in the invention of Claim 38, in order to allow devices to provide information to control the games console and information processed by and/or displayed by the games console (See Column 2 Line 66 – Column 3 Line 4 of Herder).

Response to Arguments

14. Applicant's arguments with respect to Claims 30-33, 35, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

15. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bus system of USB with the arbitration requests of IEEE-1394, the empty packets of Hasegawa, and the integrated circuit of Hu, resulting in the invention of Claim 30, because USB and IEEE-1394 are both commonly used serial bus protocols; because arbitration requests allow each device to request fair access to the bus (See

Pages 33 and 34 of IEEE-1394); to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa); and to allow production of compound USB devices on a single chip (See Column 1 Lines 33-35 of Hu) and thus reduce the size and cost of the device.

16. In response to Applicant's argument that the references fail to show certain features of Applicant's invention, it is noted that the features upon which Applicant relies (i.e., the bus is a pipelined packet switched bus) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Examiner further notes that there are no limitations in the claims requiring a pipeline bus that does not allow circulating empty packets.

17. In response to Applicant's argument that the token ring of Hasegawa is not applicable to the USB and IEEE-1394 reference, the Examiner notes that Hasagawa is not being relied upon to teach all the features of a token ring system, but is being relied upon to teach that sending an empty packet during periods when the bus is idle that are usable by a module to gain access to the bus without making a specific request to the arbitration unit for a dedicated packet was known in the art at the time of the invention.

18. In response to Applicant's arguments that there is no motivation to combine the features of the IEEE-1394 reference with the features of the USB reference, the Examiner notes that USB and IEEE-1394 are both commonly used serial bus protocols and arbitration requests allow each device to request fair access to the bus (See Pages 33 and 34 of IEEE-1394).

19. In response to Applicant's arguments that there is no motivation to combine the features of Hasegawa with the features of the IEEE-1394 reference and the USB reference, the Examiner notes that Hasegawa teaches a means to reduce the latency of arbitration by providing an indication that the bus is free and thus does not require a request to a central arbiter to be performed (See Column 1 Lines 16-21 of Hasegawa). The Examiner further notes that Hasagawa teaches transmitting data between stations via a common line (See Column 1 Lines 13-14) and thus is applicable to a serial bus system.

20. In response to Applicant's arguments that USB and IEEE-1394 are not appropriate or intended for on-chip usage, the Examiner notes that Hu teaches locating a USB on a single integrated circuit (See Figures 1 and 2 and Column 1 Lines 39-55).

Drawings

21. The drawings were received on 24 November 2004. These drawings are not acceptable. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Replacement Figure 1 does not show the changes indicated on the Annotated Marked-Up Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the Examiner, the Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. Replacement Figures 13, 14, 15, 16, 17, 18, 19, 21, 22, 26, 28, and 29 are acceptable.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thomas J. Cleary whose telephone number is 571-272-3624. The Examiner can normally be reached on Monday-Thursday (7-3:30), Alt. Fridays (7-2:30).

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mark H. Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

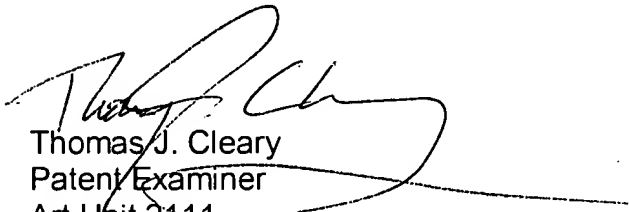
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